Panasonic

Video Cassette Recorder

NV-J700PX

Operating Instructions

VHS
PAL/ SECAM/ NTSC

Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT4177

MC-Service

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33	SPECIFICATIONS

The serial number of this product may be found on the back of the unit. No others have the same serial number as yours. You should record the number and other vital information here and retain this book as a permanent record of your purchase to aid identification in case of theft.

Date of Purchase

Dealer Purchased From

Dealer Address

Dealer Phone No.

Model No. **NV-J700PX**

Serila No.

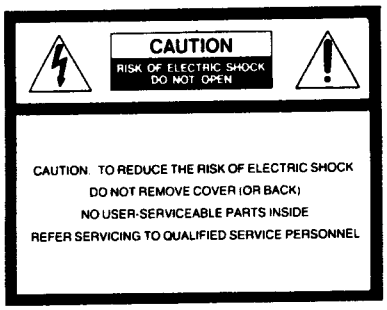
WARNING:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CAUTION:

- **TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.**

"This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications set forth in Subpart J of Part 15 of the FCC Rules. If this equipment does cause interference to radio or television reception which can be determined by turning the equipment on and off, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver".

Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included.
Therefore, it should be read carefully in order to avoid any problems.

ACCESSORIES

1 pc. Wireless Remote Controller
1 pc. F-DIN Connector Adaptor
1 pc. 300 ohm–75 ohm Transformer
1 pc. DIN-F Coaxial Cable
1 pc. DIN-DIN Coaxial Cable
1 pc. AV Cable
1 pc. AC Power Cord
1 pc. Power Plug Adaptor (VJS1993)
2 pcs. "AA" size Batteries

Auto Voltage Selector

This unit is equipped with an Automatic Voltage Selector. This unit can be used where the local voltage indication is between 110–120 V or 220–240 V, without any manual voltage adjustment.

If your local voltage is between 220–240 V, use the supplied power plug adaptor (VJS1993).

CAUTION: Voltage settings 110 V, 220 V and 240 V are not intended for use in U.S.A. and Canada.

HQ (HIGH QUALITY) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VCRs that use the conventional VHS system.

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CAUTIONS

Please read these cautions before you operate this VCR.

Cassette Compartment Door

When first unpacking the unit, you may notice that the cassette compartment door is partially open. This condition is due to the operation of a safety device designed to protect the unit from vibration during shipment; it is not a malfunction. When the AC Power Cord is connected to an AC power outlet, the door will return to its original position.

Avoid Sudden Changes in Temperature

If the VCR is suddenly moved from a cold place to a warm place, moisture may form on the tape and inside the VCR. In this case, the Dew Indicator " ☃ " will flash on and off and the VCR will not operate.

Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

Do Not Obstruct the Ventilation Holes

The ventilation holes prevent abnormal increase in temperature. Do not block or cover these holes. Especially avoid covering the holes with soft materials such as cloth or paper.

Keep away from High Temperature

Keep the VCR away from extreme direct heat such as direct sunlight, heating radiators, or closed automobiles.

Keep Magnets away

Never bring a magnet or magnetized object near the VCR because it will adversely affect the performance of the VCR.

No Fingers or Other Objects Inside

Touching internal parts of this VCR is dangerous, and may cause serious damage to the VCR. Do not attempt to disassemble the VCR. There are no user serviceable parts inside.

Keep Water away

Keep the VCR away from flower vases, tubs, sinks, etc. CAUTION: If liquids are spilled into the VCR, serious damage could occur. If you spill any liquid into the VCR, consult qualified service personnel.

Lightning

To avoid damage by lightning, disconnect the antenna plug from the VCR.

Cleaning the VCR

Wipe the VCR with a clean, dry cloth. Never use cleaning fluid, or other chemicals. And do not use compressed air to remove dust.

Stacking

Place the VCR in a horizontal position, and do not place anything heavy on it.

Video Head Clogging

The video heads are the means by which the recorder places picture signals on the tape during recording, and reads picture signals from the tape during playback. This VCR is equipped with Auto Head Cleaning Function. However, if the unit is used over extremely long periods of time, these heads may still become dirty and clogged. In such a case, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such a symptom case occurs have the recorder checked by qualified service personnel.

If Dew Condensation Forms in the VCR

Condensation may form in the VCR if:

- The VCR is in a room where the heater has just been turned on.
- The VCR is in a room with steam or high humidity.
- The VCR is brought from cold surroundings into a wellheated room.
- The VCR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

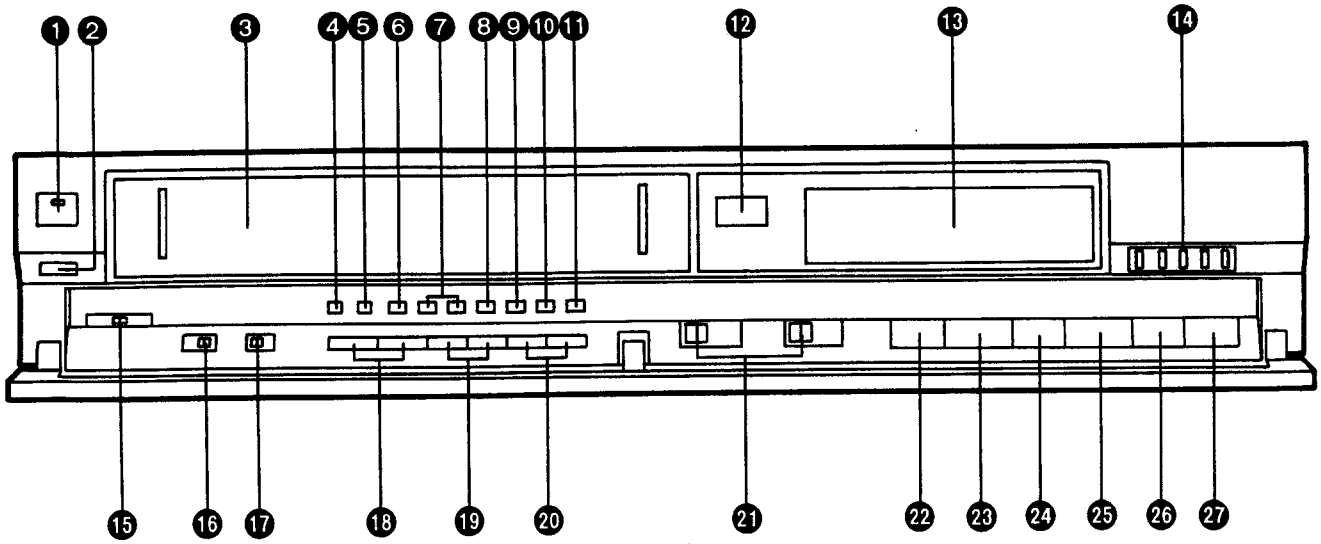
When dew forms in the VCR: (Refer to page 6.)

The Dew Indicator " ☃ " on the Multi-Function Display will flash on and off and all the function buttons are made nonoperational to protect the tape and the video heads. When the Dew Indicator flashes, wait until this indicator disappears.

- If dew condensation forms inside the VCR while the Power On/Off Switch is off, it will turn on automatically and the Dew Indicator will flash on and off. As soon as the dew condensation has been dissolved, the VCR will turn itself off again.

CONTROLS AND COMPONENTS

FRONT



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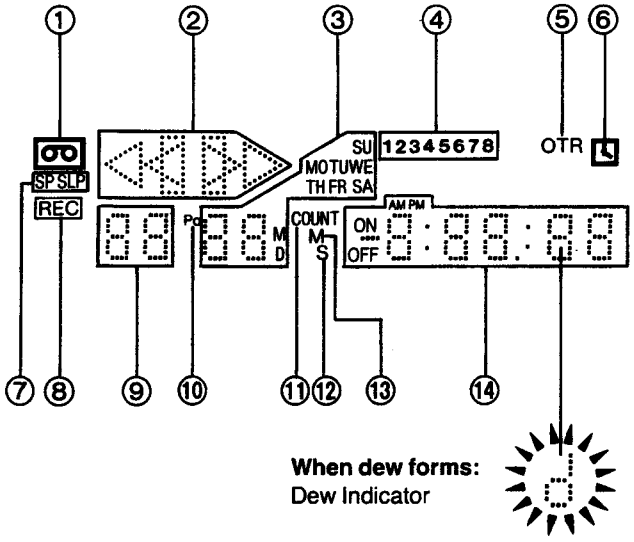
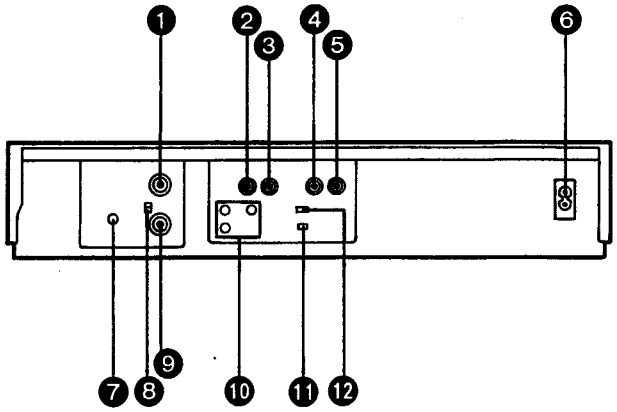
CONTROLS AND COMPONENTS (CONT'D)

Multi-Function Display



When dew forms:
Dew Indicator

REAR



No.	Description	Page
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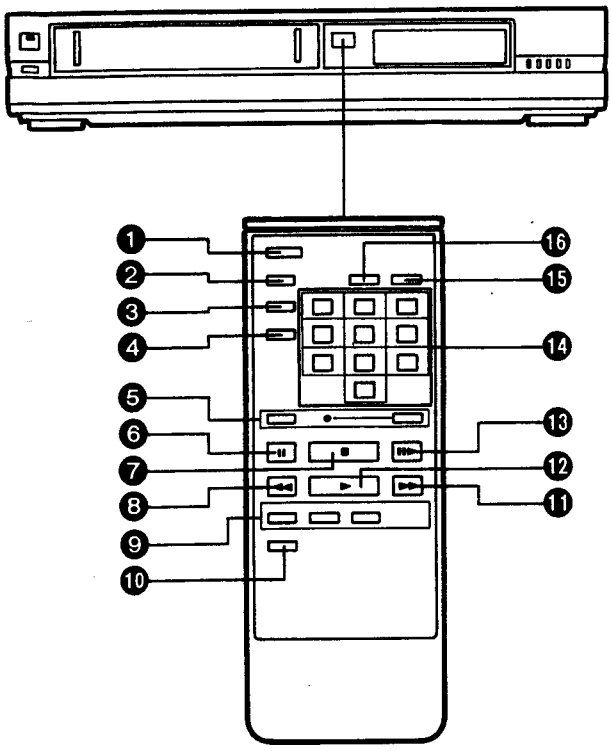
WIRELESS REMOTE CONTROLLER



❶ **Power On/Off Button**

❷ **Clock/Counter Selector**

❸ **Memory/Search Button**

❹ **Reset Button**

❺ **Record Button (●)**
To start recording, press the two buttons simultaneously.

❻ **Pause/Still Button (❚❚)**

❼ **Stop Button (■)**

❽ **Rewind ◀◀/Review ⏪ Button**

❾ **Slow Buttons**

❿ **Reverse Play Button**

⓫ **Fast Forward ▶▶/Cue ⏩ Button**

⓬ **Play Button (▶)**

⓭ **Frame Advance Button (❚▶)**

⓮ **Programme Position Selector Buttons**

⓯ **Time Search Button**

⓰ **+/– Button**

Power Source for the Remote Controller

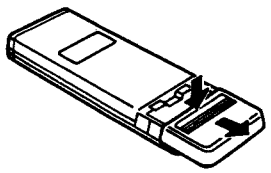
■ The Remote Controller is powered by two ANSI "AA" size batteries. The life of the batteries is about one year, however, it depends on the frequency of use. Inspect and if necessary, replace the batteries once a year.

CAUTION FOR BATTERY REPLACEMENT

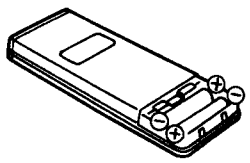
- Load the new batteries with their polarities (⊕ and ⊖) aligned correctly.
- Do not apply heat to batteries, or internal short-circuit may occur.
- If you do not intend to use the Remote Controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use old and new batteries together. (Also never use an alkaline battery with a manganese battery.)

Load the batteies as follows:

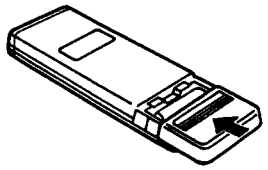
❶ Remove the battery compartment lid.



❷ Place the batteries in the battery compartment as indicated inside the battery compartment.



❸ Replace the lid.



Note:

- The infra-red beam should be transmitted directly at the Remote Control Receiver on the front of the VCR.
- Direct sunlight may interfere with the beam.
- The lightsensing angle of the Remote Control Receiver in the VCR is about 30° for each side from the center.
- The unit should be used within a range of about 7 meters from the front of the VCR.

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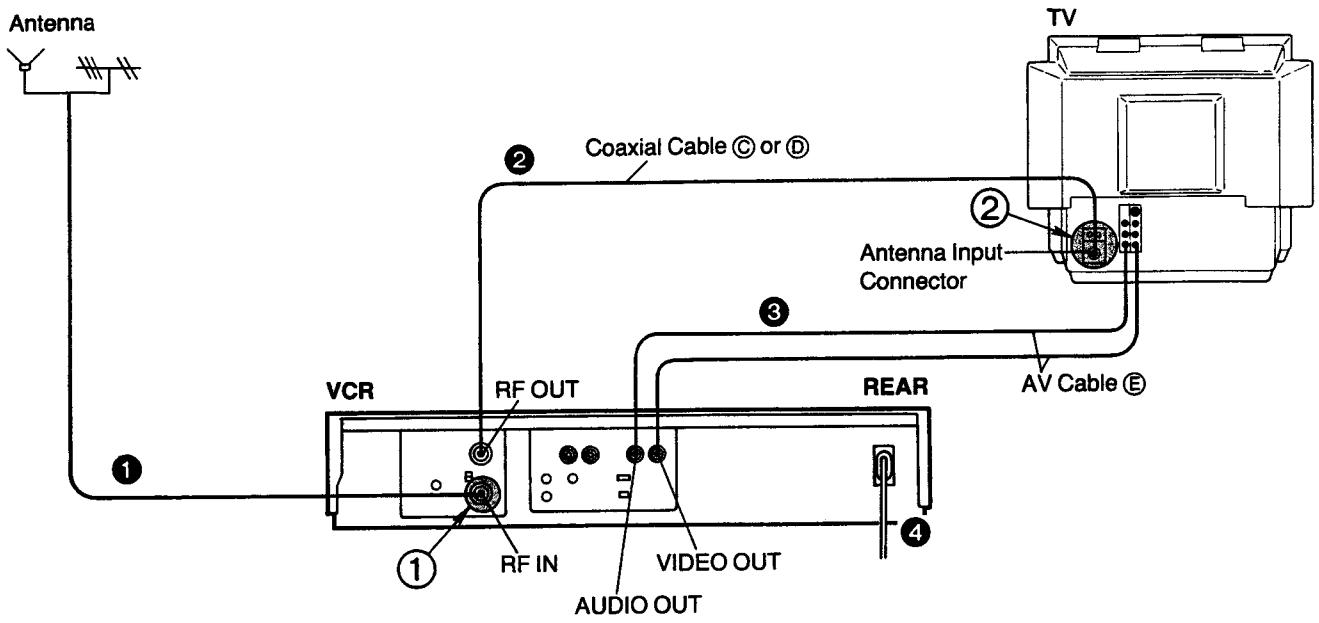
INSTALLATION



Preparation
Remove the VHF and UHF antenna lead wires from the antenna terminals on the TV.

Basic Connection

❶ Connect the removed antenna lead wires to the RF Input Connector on the back of the VCR.

❷ Connect the Antenna Input Connector on your TV set to the RF Output Connector on the back of the VCR with the supplied Coaxial Cable.

❸ If the TV set is equipped with separate video and audio input jacks, it is recommended to connect the VCR to the TV set with separate video and audio cables.

❹ Connect the AC Power Cord to the AC Power Cord Connector, and the VCR to the AC outlet.

The connection is different, depending on the type of TV set. (The following page shows how to connect the cables.)

Note:
If the TV set is being tuned to the video playback channel while the VCR is receiving or playing back signals in the NTSC System, or while the NTSC 3.58 Indicator is lit on the VCR, no RF signal will be output from the VCR. Therefore, monitoring the picture on the TV set is not possible using the RF connection. In this case, also make the AV connection as described in step ❸.

Accessories

Ⓐ F-DIN Connector Adaptor
Ⓑ 300 ohm–75 ohm transformer
Ⓒ DIN-F Coaxial Cable
Ⓓ DIN-DIN Coaxial Cable
Ⓔ AV Cable

Optional Accessories

Ⓕ U/V Mixer
Ⓖ U/V Splitter
Ⓗ VHF Matching Box
Ⓘ Antenna Plug

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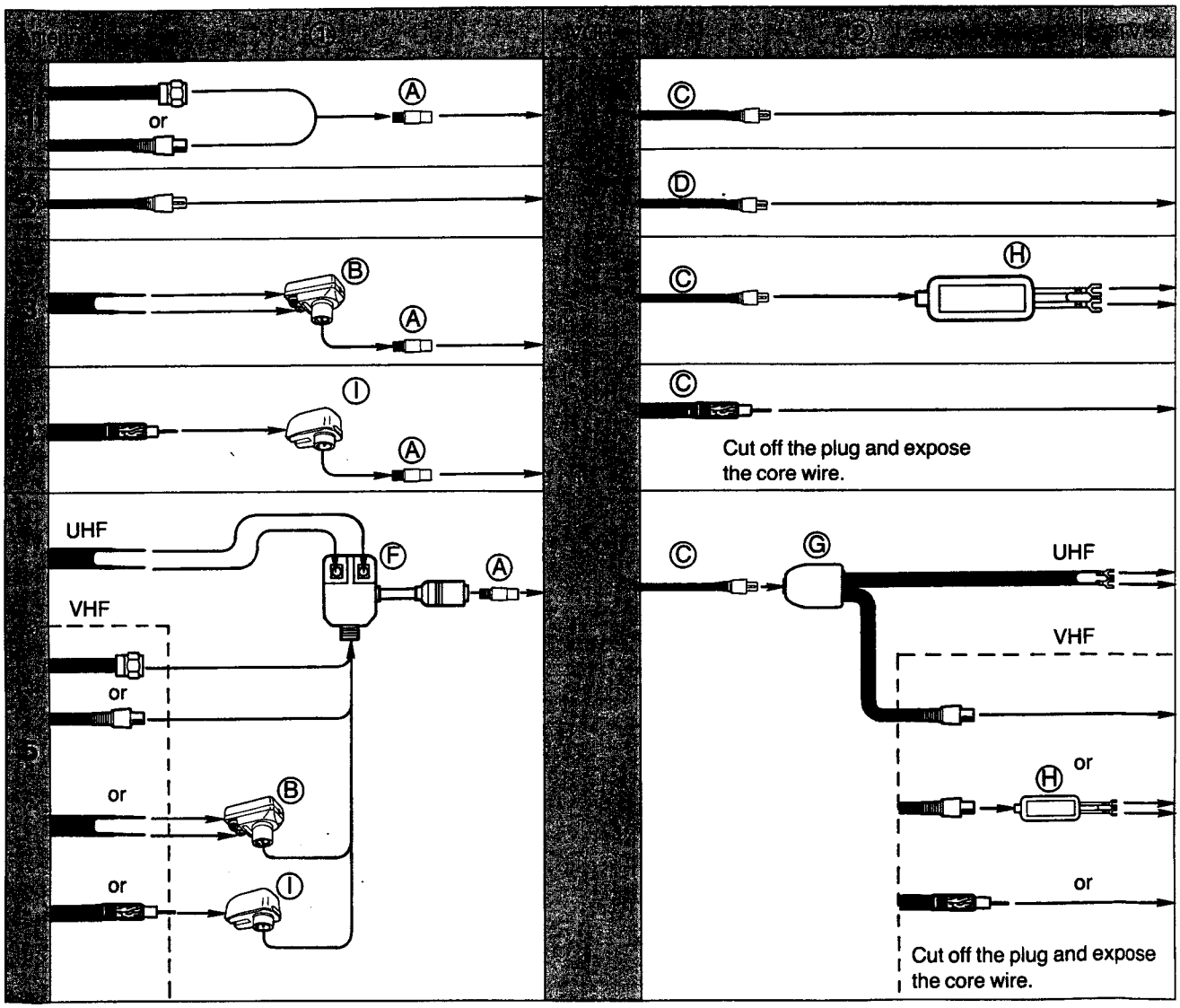
Types of Antenna Cables

1 VHF antenna cable only with attached F-connector
2 VHF antenna cable only with attached DIN-connector
3 Feeder cable type VHF antenna cable only
4 Bare VHF cable only
5 VHF and UHF cables with U/V Mixer



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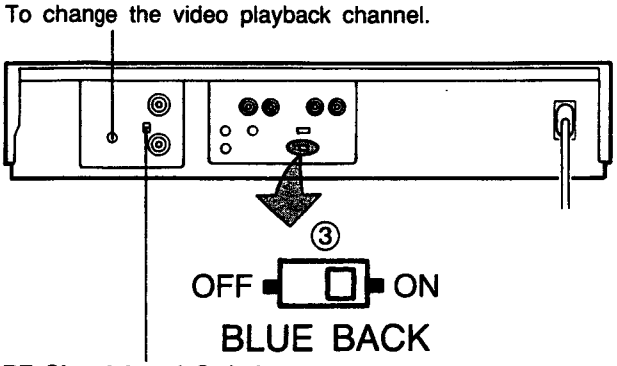
TUNING THE TV SET TO THE VIDEO PLAYBACK CHANNEL

Video Playback Channel

The adjustments described on this page are not necessary, if the VCR is connected to the TV set via the Video/Audio output jacks.

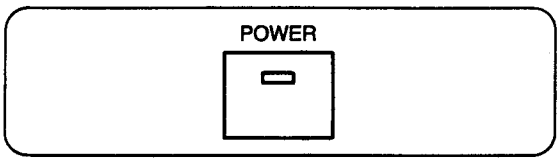
Video Playback Channel Adjustor
To change the video playback channel.



RF Signal Level Switch:
Used to attenuate the reception of the aerial signals. If the reception is normal, set to "HIGH". If the signal is strong (stripes appear in the upper part of the picture), set to "LOW".

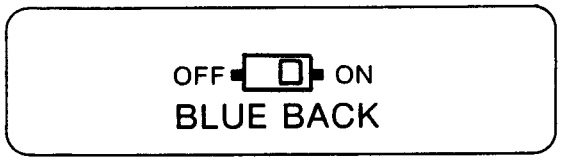
① Turn the TV set on and select the AV program position or another program position that is not occupied by any TV station.

② Press the Power On/Off Switch to turn the VCR On.
(FRONT SIDE)



- The corresponding indicator lights up.

③ Set the Blue Back Switch to "On".



④ Tune the selected program position (channel) of the TV set to UHF approx. channel C25 or E38.
Confirm on your TV set that the blue screen or the gray screen appears.
- If UHF channel E38 (C25) is already occupied by a TV station in your area, the video playback channel can be changed between channel 32 to 40 (24 to 27) on the back of the VCR by using a small screwdriver.

⑤ To check, play back a pre-recorded tape and readjust fine tuning of TV if necessary.

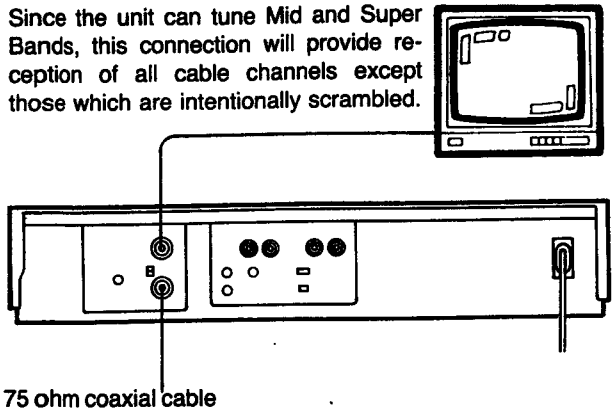
CABLE CONNECTIONS

Cable-VCR-TV (For CATV/PAY Channels Recording/ Playback)

The unit has an extended range, and can tune the Mid-Band and Super-Band cable channels. (Channels A-5~W). Also, the unit can tune to any of the 56 UHF channels (14~69). Refer to SETTING THE TUNER IN THE VCR.

BASIC Hook-Up

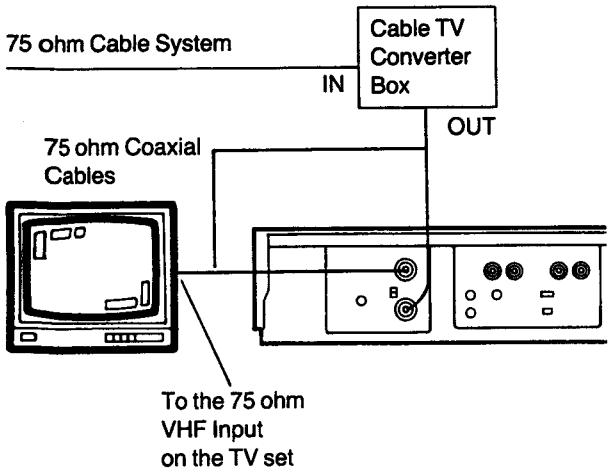
Since the unit can tune Mid and Super Bands, this connection will provide reception of all cable channels except those which are intentionally scrambled.



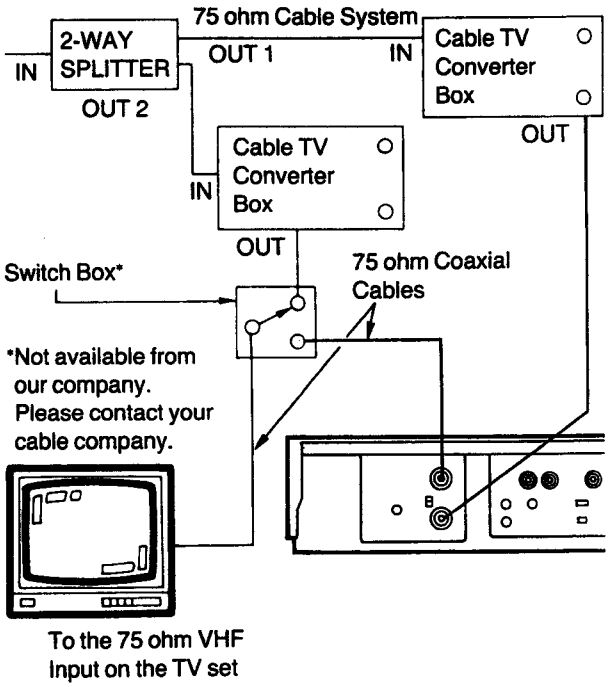
75 ohm coaxial cable
Channels 2~A-3, A-2~W, 14~69

However, if you subscribe to a special channel which is scrambled—you probably have a descrambler box for proper reception. The VCR by itself cannot properly receive a scrambled program since it does not contain a descrambler. In order for the VCR to properly receive a scrambled program, your existing descrambler must be used.
There are two commonly used methods of connection in this case.

Typical Cable System Hook Ups with Cable Converter/Descrambler Boxes



The above cable hook-up allows VCR-TV functions except for viewing one channel while recording another.



The above cable hook-up allows VCR-TV functions, including viewing one channel while recording another, but it requires two cable TV Converter Boxes, one Switch Box and one 2-Way Splitter.

Since the VCR has an extended range of tuning, tuning-programing of non-scrambled Mid-Band and Super-Band TV programs is possible. When a cable converter or descrambler box is connected to the unit, all Unattended Recording functions will continue to operate with the exception of changing channels automatically. CATV Channel selection will have to be performed with the cable converter. Unattended Recording from CATV channels is therefore limited to one channel at any given time.

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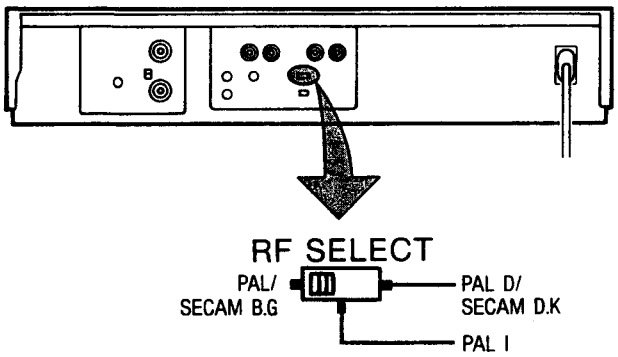
SYSTEM SELECTION

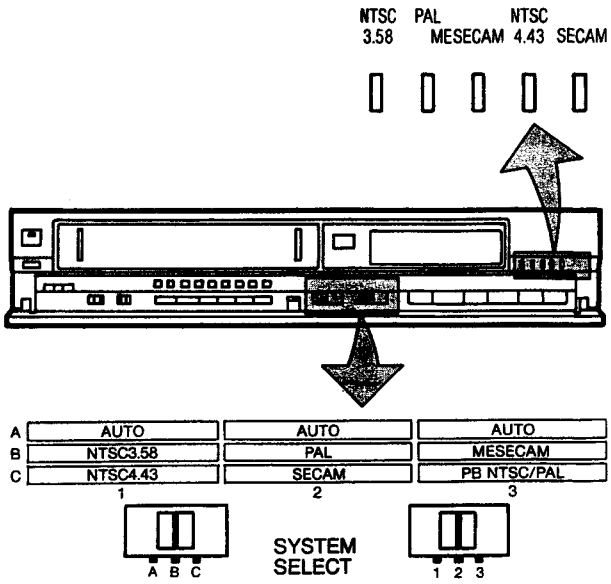
This set offers full coverage video performance, thanks to NTSC/PAL/SECAM/MESECAM operation.
Use the RF Selector to select the color TV system used by the TV set to be connected.



RF Selector Switch
Set this selector to the "PAL/SECAM B•G", "PAL I" or "PAL D/SECAM D•K" position, depending on the type of PAL/SECAM colour system used for TV broadcasts in your area.
PAL-B•G: Continental Europe, Oceania, India, Pakistan, Indonesia, Thailand, Malaysia, Singapore
PAL-I: U.K., Hong Kong, Ireland, South Africa
PAL-D: China
SECAM B•G: Middle and Near East, East Germany
SECAM D•K: Eastern Europe, USSR

For receiving NTSC broadcasts with the System Selectors set to "AUTO" or "NTSC", the RF Selector can be set to any position.

System Indicators



System Selectors

When the System Selectors are set to "AUTO", the color system (PAL, NTSC 3.58 MHz or MESECAM) that corresponds to the program to be recorded or played back will be selected automatically. SECAM system signals will be recorded in the MESECAM system.
If the picture is not stable, set the System Selectors to the system in which the recording or playback is to be made.

When recording and playing back in another system (NTSC 4.43 MHz, or SECAM), set the System Selectors to the system in which the recording or playback is to be made.

Set the System Selectors according to the chart below. (For example, in order to select SECAM, set the System Selectors to "C" and "2".)

	1	2	3
A	AUTO	AUTO	AUTO
B	NTSC3.58	PAL	MESECAM
C	NTSC4.43	SECAM	PB NTSC/PAL

Note:
It is not possible to monitor the picture if the color systems of the playback picture and the TV set are different (Except for PB NTSC/PAL).

A-1 AUTO
When the System Selectors are set to this position, PAL, NTSC 3.58 or MESECAM will be selected automatically according to the system of the program to be recorded or played back. SECAM system signals will be recorded in the MESECAM system.

A-2 AUTO
This position is the same as **A-1 AUTO**.

A-3 AUTO
This position is the same as **A-1 AUTO**.

B-1 NTSC 3.58
When recording or playing back a tape recorded in the NTSC 3.58 system, set the System Selectors to this position.

B-2 PAL
When recording or playing back a tape recorded in the PAL system, set the System Selectors to this position.

B-3 MESECAM
When recording or playing back a tape recorded in the MESECAM system, set the System Selectors to this position.

C-1 NTSC 4.43
When recording or playing back a tape recorded in the NTSC 4.43 system, set the System Selectors to this position.

C-2 SECAM
When recording or playing back a tape recorded in the SECAM system, set the System Selectors to this position.

C-3 PB NTSC/PAL
When playing back a tape recorded in the NTSC system on a PAL system TV set, set the System Selectors to this position.

■ **System Indicators**
The lamp corresponding to the mode selected with the System Selectors will be lit.
- When the System Selectors are set to "C-3", the System Indicators will not light up.

When the System Selectors are set to "AUTO":
- The System Indicator (PAL, NTSC 3.58 or MESECAM) for the system in which the recording or playback is being made will light up.

Note:
When the System Selectors are set to "AUTO", it is not possible to record or play back in a system other than PAL, NTSC 3.58 or MESECAM. However, one of the System Indicators (PAL, NTSC 3.58 or MESECAM) will light up. In that case, set the System Selectors to the system in which the recording or playback is to be made.

NTSC Playback via a PAL system TV set

- Depending on the TV set used, the picture may be in black and white. However, this is not an indication of a malfunction.
- Depending on the TV set used, the picture may shrink vertically and black bars may appear both at the top and bottom of the screen.
  This is not an indication of a malfunction.
- The playback picture may roll up or down. If the TV set is equipped with a V-HOLD control, it may be possible to stop the picture movement by adjusting this control.
  However, TV sets not equipped with a V-HOLD control cannot correct this condition.
- The special playback functions (except normal playback) cannot be used. This is not an indication of a malfunction.
- Recording is not possible.

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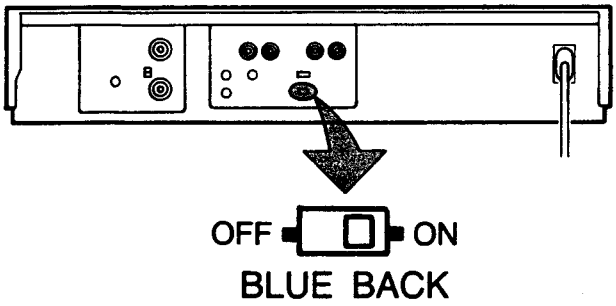
BLUE BACKGROUND FUNCTION

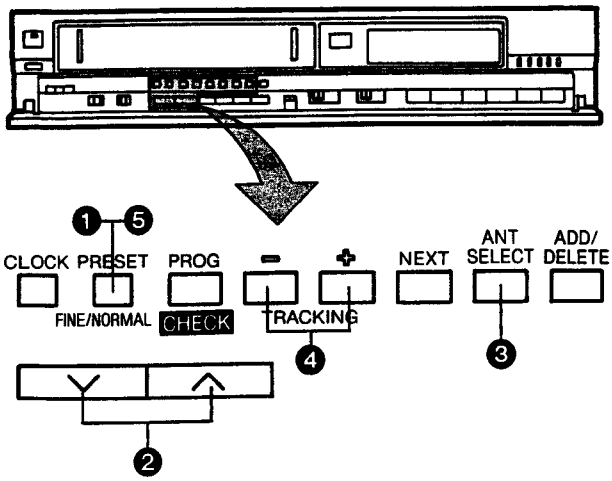
This function automatically changes an unpleasant noisy picture, such as parts of video tapes without recording, or of a program position which has not been tuned to a TV station, to a blue background picture.



- When the Blue Back Switch is set to "OFF", the blue background function does not work.
- In areas of extremely weak reception, the blue background function may be activated automatically when trying to tune a program position (channel) to a weak TV station, thus making it impossible to tune it. In this case, set the Blue Back Switch on the VCR to "OFF".
- No video signal is input (for example, when the power of the connected equipment is off) from the Video Input Jack, the blue background function will also work.
- It is not possible to record the blue picture of the blue background function.
- In the special playback modes, the Blue Background function does not work, even if the picture becomes noisy.
- In TV systems other than PAL and NTSC 3.58, the background picture will be gray, not blue.
- When using this VCR with a TV set designed for SECAM reception, the background picture may be red. This is not an indication of a malfunction.
- When using this VCR with a TV set designed for PAL reception only, the Blue Background Function may not work correctly. In this case, select the PAL system with the System Selectors.

SETTING THE TUNER IN THE VCR

The tuner in the VCR makes it possible to receive TV broadcasts and to record these programs without having to turn on the TV set.



Preparation

- Turn the TV set on and select the program position (channel) which you have tuned to the video playback channel.
- Press the Power On/Off Switch to turn the VCR on.
- Set the System Selectors to the system in which the TV station to be tuned is broadcasting.
- Select the TV system of the TV station which is desired to be tuned with the RF Selector. (Rear Side)

Tuning Procedure

1. Press the Preset/Fine/Normal Button.
   The indication on the Multi-Function Display changes from the clock indication to the position indication.
2. Press the Channel Up or Down Button to select a program position (channel) which you want to tune to a TV station.
3. Press the Ant Select Button to select the "L", "H" or "U" position.

Display of the program positions 1–99

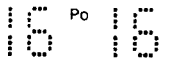
Indication of the selected TV band

	VHF		UHF
	L	H	U
NTSC	2–A-3	A-2-W	14–69
PAL/SECAM B·G·H D·K I	E2–S3 (E2–E4 S1–S3)	M1–U10 (M1–M10 E5–E12 U1–U10)	21–69

The tuner in the VCR can be preset with up to 99 stations.

4. Press the "+" or "−" Button.

During the station search (The position indication flashes on and off.)



Tuned condition

- When the tuning of the station is completed, the indication stops flashing and the tuned station is automatically memorized.
- At every push of the "+" or "−" Button, the station will be tuned automatically.

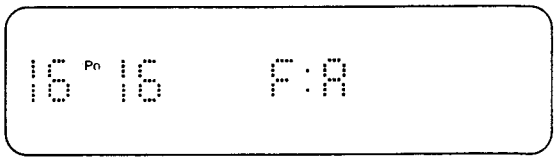
Repeat steps 2–4 for each channel you want to tune to a station.

5. Press the Preset/Fine/Normal Button twice.
   The indication on the Multi-Function Display changes back to the previous indication.

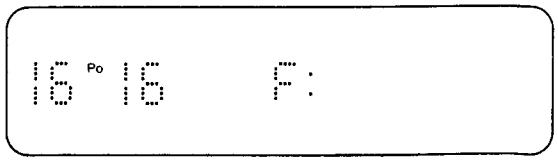
Fine Tuning Procedure

If fine tuning is necessary, for example for a weak station which is close to a strong station:

1. Press the Preset/Fine/Normal Button twice.



2. Press the "+" or "−" Button to obtain the best tuning condition.



- "A" Indicator will not be displayed.
- To return the tuning to its former state, press the Ant Select Button.

3. Press the Preset/Fine/Normal Button.

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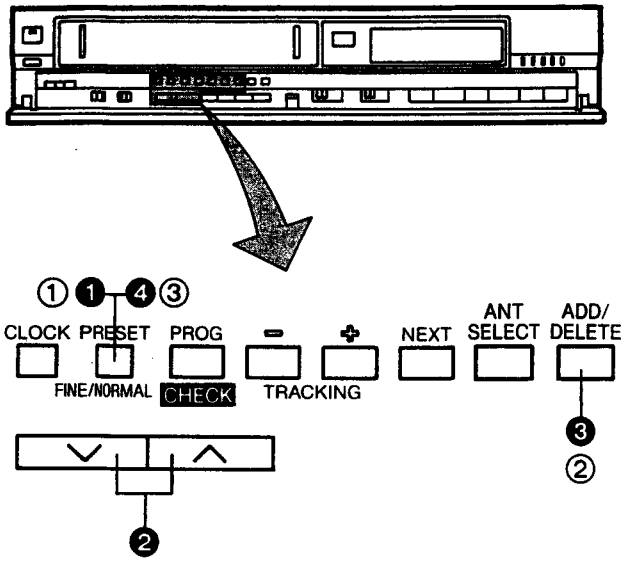
SETTING THE TUNER IN THE VCR (CONT'D)

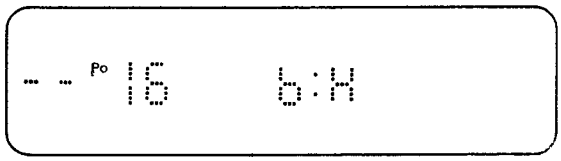


Blanking of Unoccupied Program Positions

❶ Press the Preset/Fine/Normal Button.

❷ Press the Channel Up or Down Button to select a program position (channel) which you do not want to tune to a TV station.

❸ Press the Add/Delete Button ("—" will be displayed in the Program Position Indication).



- Repeat steps ❷ and ❸ for any program positions on which no stations are to be tuned. Afterwards, these program positions will be skipped during Up/Down selection of the program position.

❹ Press the Preset/Fine/Normal Button twice.

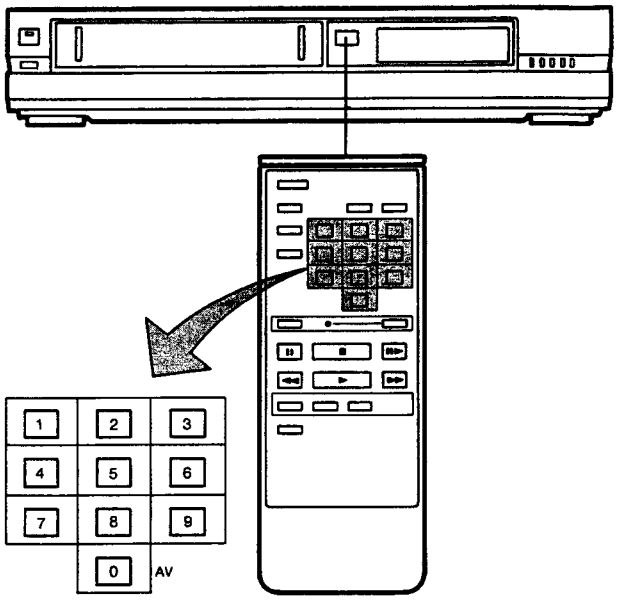
Cancelling the Blanking

① Press the Preset/Fine/Normal Button.

② To cancel the blanking of a program position, select that program position on the VCR and then press the Add/Delete Button.

③ Press the Preset/Fine/Normal Button twice.

How to Select the Program Position (Channel) on the Remote Controller

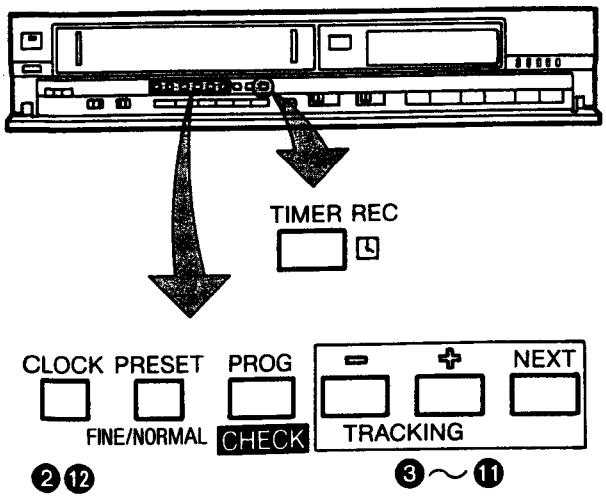


Two buttons must be pressed to select a desired channel. Therefore, when selecting a channel position between 1 and 9, press the "0" Button first, and then press the desired channel number.

To select the "AV" program position:
Press the "0" Button twice.
To select the signals which are input via the Audio Input jack and the Video Input jack, select the "AV" program position.

SETTING THE CLOCK TO THE PRESENT TIME

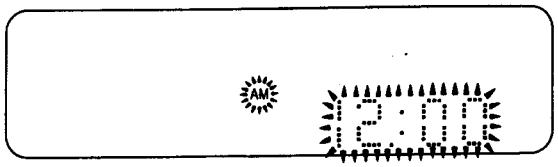
The built-in digital clock employs the 12-hour system.



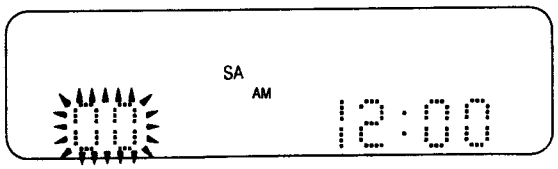
For Example: Set the clock for Sunday, October 10, 1999, AM 9:10.

- Connect the VCR to the AC outlet.
- Press the Power On/Off Switch to turn the Power On.

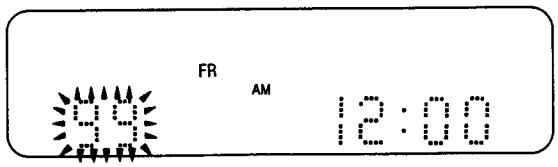
❶ When connecting this VCR to the AC outlet or after a long power failure, the indications flash.



❷ Press the Clock Button to start the date and time setting.

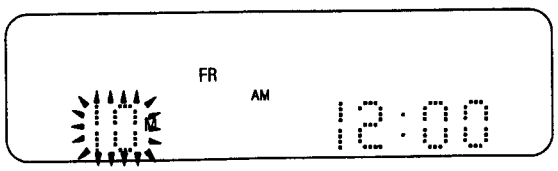


❸ Press the "+" or "−" Button to set the year.



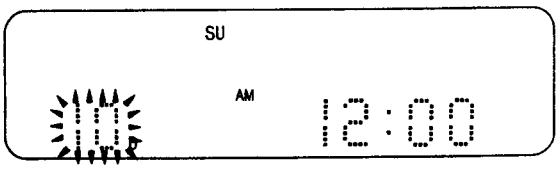
❹ Press the Next Button.

❺ Press the "+" or "−" Button to set the month.



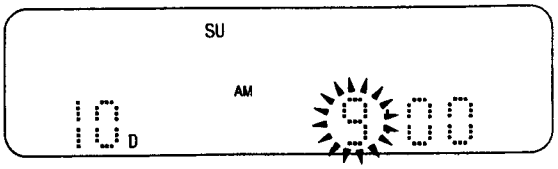
❻ Press the Next Button.

❼ Press the "+" or "−" Button to set the date.



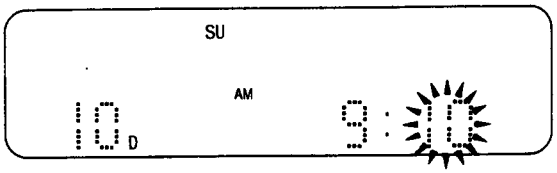
❽ Press the Next Button

❾ Press the "+" or "−"Button to set the hour.

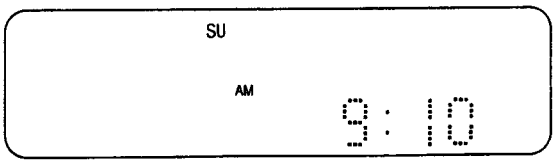


❿ Press the Next Button.

⓫ Press the "+" or "−" Button to set the minute.



⓬ Press the Clock Button when the present time becomes exactly 9:10'00".



At every push of the Next Button, the flashing indication changes in the following order.

YEAR→MONTH→DATE→HOUR→MINUTE

- In case of a power failure, the timer back-up system maintains the clock operation and timer content for at least 60 minutes. However, depending on the charging time and the memory content, the back-up time may be considerably longer. However, it takes more than 60 minutes for the back-up circuit to become operational, after the VCR is connected to the AC power outlet.
- The Timer Record Function should be set to "Off", otherwise the VCR cannot be operated normally. In this case, the Timer Record Indicator "⏲" will flash to warn you.
- During date setting, the corresponding day is simultaneously set.
- The clock/timer of the VCR is programmed with the calendar up to the end of the year 2087.
  The indications 88–99 are for the years 1988–1999.
  The indications 00–87 are for the years 2000–2087.

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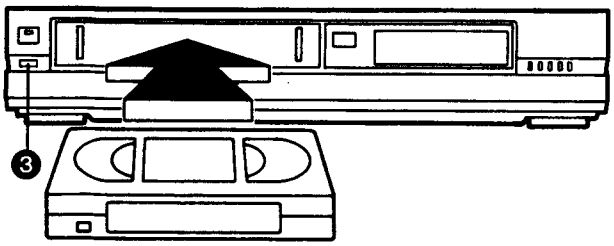
THE VIDEO CASSETTE

Inserting a Video Cassette (Auto Operation)



❶ Insert the video cassette as shown. The power will be turned on automatically and the cassette will be automatically drawn into the VCR.

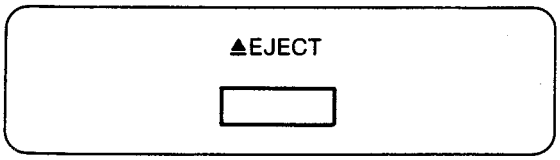
❷ When a video cassette is inserted, the "⊙⊙" mark will appear.

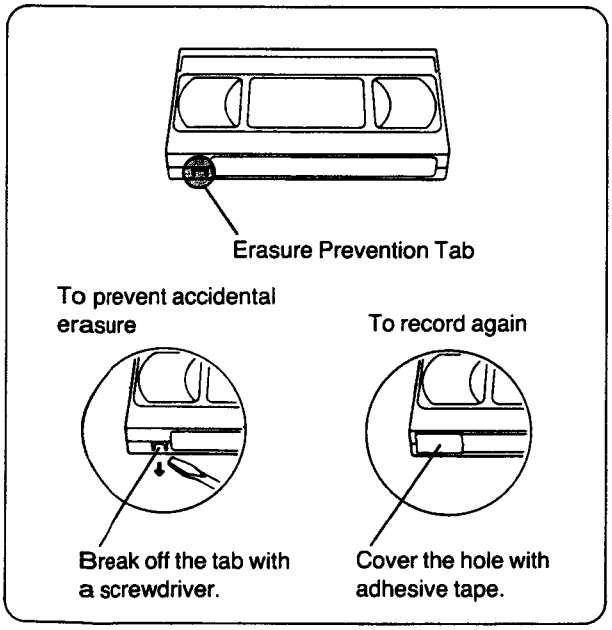
Notes:

- When a video cassette with broken out erasure prevention tab (for example a pre-recorded tape) is inserted, playback will start immediately.
- Use VHS video cassette tapes only.

Removing a Video Cassette

❸ Press the Eject Button (▲).




Erasure Prevention Tab
To prevent accidental erasure
To record again
Break off the tab with a screwdriver.
Cover the hole with adhesive tape.

AUTO OPERATION

Auto Power On
When a cassette is inserted, the power turns itself on automatically.

Auto Cue and Play
When inserting a video cassette which has the erasure prevention tab removed playback will start automatically. If nothing is recorded on the part of the tape where playback is started, the VCR will automatically be in the Cue playback mode until the recorded part is reached, then it changes back to normal playback mode.
This applies only to previously unused tapes. Tapes which have been erased or re-recorded will not exhibit this feature.

Auto Rewind
When the tape reaches its end (except OTR and timer recording), it will automatically be rewound to the beginning.

Auto Eject
When trying to record on a cassette whose tab is broken out, the cassette will automatically be ejected to warn that the recording cannot be made.

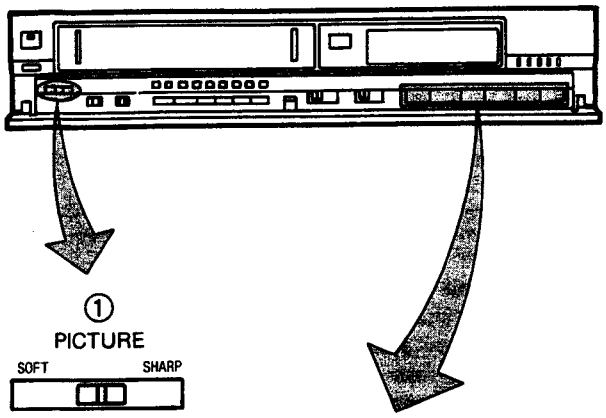
Power-Off Eject
When the power is off, the inserted cassette can be ejected simply by pressing the Eject Button, and VCR will automatically turn itself off again.

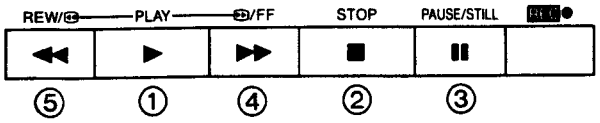
Rewind Auto Shut Off
When the Power On/Off Switch is pressed during rewinding, the cassette will be ejected as soon as the beginning of the tape is reached, and the power will turn itself off.

Auto Head Cleaning Function

This VCR features a special function that automatically removes tape particles and dust from the video heads to ensure continuously superior picture quality. While the Head Cleaning function is working, some noise may be reproduced. However, this is no malfunction.

PLAYBACK



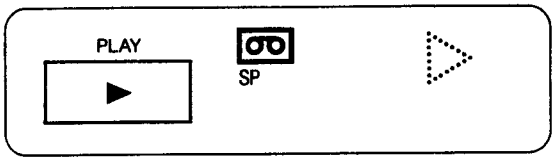


Preparation

- Make sure that the Timer Record Function is set to "Off".
- Insert a recorded video cassette.
  When a video cassette is already inside the VCR, press the Power On/Off Switch to turn it on.
- Turn the TV set on and select the video playback channel.
- Set the Noise Filter/Edit Selector to "Off".

① Normal Playback

Press the Play Button (▶).



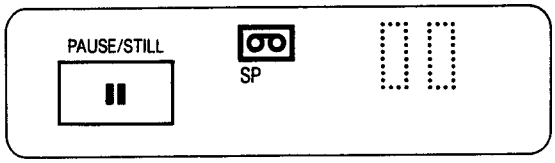
- Control the picture as you like with the Picture Sharpness Control (sharp or soft contours).

② To Finish Playback

Press the Stop Button (■) to stop the Playback.

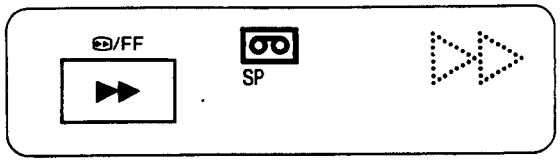
③ Super Still Playback

When the VCR is in the playback mode, press the Pause/Still Button (❚❚) to view a still-picture. To continue the normal playback, press this button again.



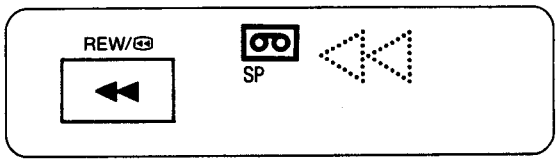
④ Cue Playback

When the Fast Forward ▶▶/Cue Button is kept pressed while the VCR is in the playback mode, the tape will be played back at high speed in forward direction.



⑤ Review Playback

When the Rewind ◀◀/Review Button is kept pressed while the VCR is in the playback mode, the tape will be played back at high speed in reverse direction.



To make possible Cue or Review playback without having to keep the respective button pressed, first press the Memory/Search Button on the Remote Controller so that the Search Indicator "S" appears in the Multi-Function Display, and then press the Fast Forward ▶▶/Cue Button or the Rewind ◀◀/Review Button.
To switch the VCR back to normal playback, press the Play Button (▶).

- When Cue or Review playback continues for more than 10 minutes, the VCR will automatically switch back to the normal playback mode.

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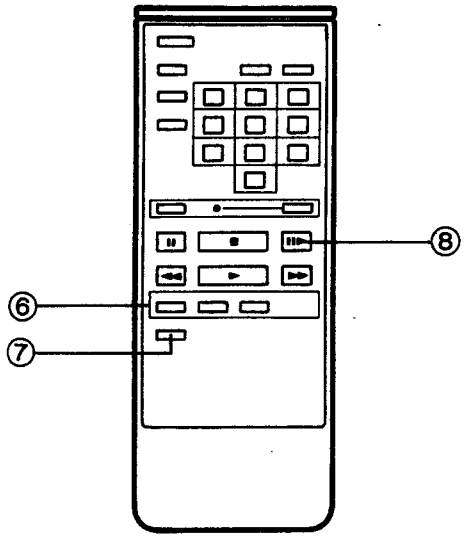
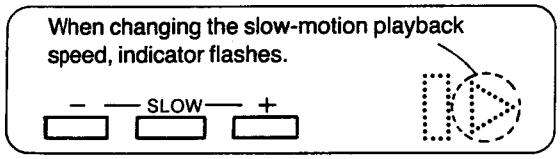
Using the Remote Controller



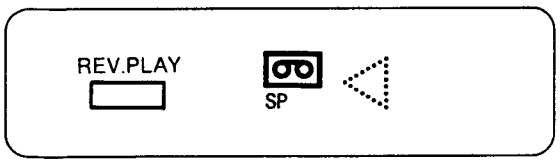
⑥ Double Super Fine Slow Playback

During normal playback, the Slow-motion playback can be activated by pressing the Slow Button. The slow-motion playback speed can then be varied by using the Slow "+" or "−" Button.



⑦ Reverse Playback

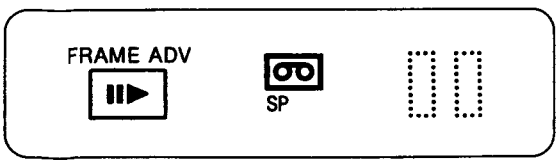
When the VCR is in the playback mode, switching over to Reverse Playback is possible by pressing the Reverse Playback Button.



- During Reverse Playback, noise bars may appear in the upper center and lower center parts of the picture.
- Press the Play Button (▶) to continue the normal playback.

⑧ Frame Advance Playback

Press the Frame Advance Button (⏭) while the VCR is in the still playback mode. Each time you press this button, the still-picture will advance one frame.



Slow Tracking Control

- When noise bars appear during Super Still, Super Still Advance or Super Fine Slow playback, switch over to Slow playback and adjust with the Tracking (+) or (−) Button to reduce the noise bars.
- It may not be possible to eliminate the noise bars completely.

- The sound will be played back only during normal playback.
- If you leave the VCR in the Still and Slow playback mode for more than 5 minutes, the VCR will automatically switch over to the Stop mode to protect the tape and the video heads.
- Noise which takes the form of horizontal bars appears on the TV in the Cue and Review playback modes. This is not an indication of a malfunction.
- The top of picture may become distorted in the Cue, Review, Still, Slow or Reverse mode. This is not an indication of a malfunction.
- When the picture rolls vertically in the Cue or Review mode, adjust the vertical hold control on the TV set.
- While playing back a tape in the Super Still or Super Fine Slow playback mode on a TV set equipped with an automatic vertical hold control, the picture may shake vertically. In this case, set the TV set's vertical hold (Auto/Manual) selector to the "Manual" position, and adjust the vertical hold control.
- Immediately after starting Cue or Review playback, the picture may be distorted. Also, when these modes are cancelled, some momentary picture distortion may occur. However, this is not due to any malfunction.
- In the LP mode in the PAL, SECAM and MESECAM systems, the picture will be black and white during any playback mode other than normal playback. However this is not due to any malfunction.
- In "LP (SLP)" mode only:
  1. During any playback mode other than normal playback, the picture may have some noise bars, the color may be unstable, or a black and white picture may appear.
  2. When playing back a tape which was recorded on another VCR, it may be necessary to adjust the Tracking Control. In some cases the picture quality may still be inferior. This is due to limitation of format.
  3. When playing back a tape on which SECAM or MESECAM signals have been recorded, noise may appear.

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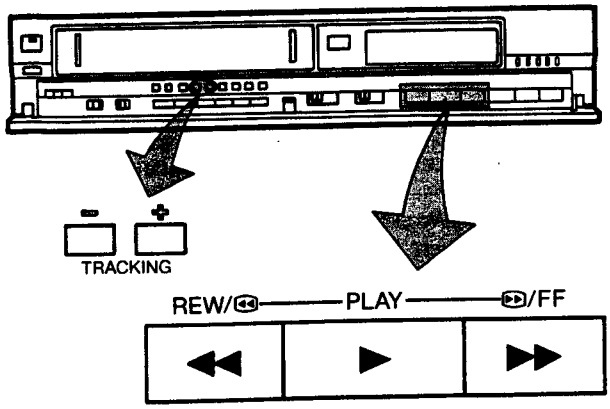
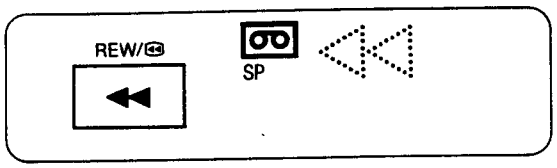
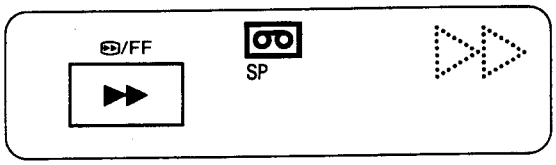


Rewind and Fast Forward

Press the Rewind ◀◀/Review ⏪ Button to rewind the tape.

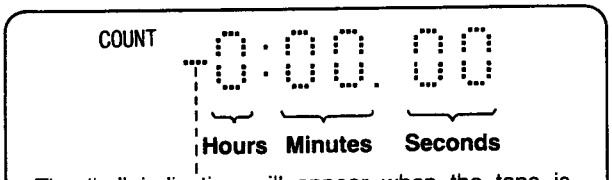


Press the Fast Forward ▶▶/Cue ⏩ Button to wind the tape forward rapidly.



Lap Time Counter

It shows the elapsed recording or playback time.



The "−" indication will appear when the tape is rewound further than the tape counter position "0:00.00".

- If the figures on the Tape Counter do not change during Fast Forward, Rewind or any of the Playback functions, this means that nothing is recorded on that tape section.
- The Tape Counter is automatically reset to "0:00.00" when the video cassette is ejected.
- When the same tape contains recordings in different TV systems, the Tape Counter may not function properly.

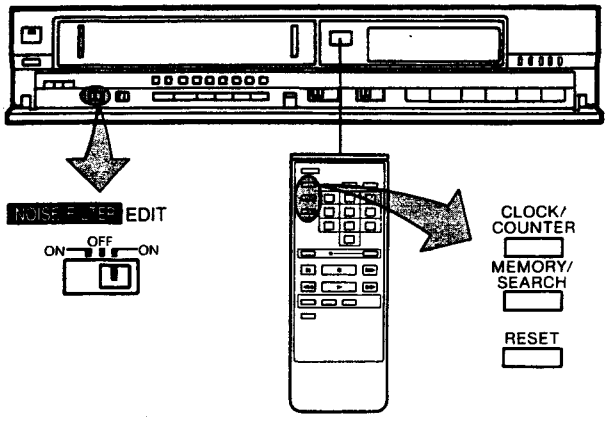
Digital Tracking

During playback, press the Tracking "+" and "−" Buttons simultaneously. The tracking adjustment will be performed automatically.

- When the picture is distorted by noise bars, press the Tracking "+" or "−" Button to select manual tracking and adjust with these two buttons. To change back to Digital Tracking, press the Tracking "+" and "−" Buttons simultaneously.

ENGLISH

PLAYBACK (CONT'D)



Memory/Search Button

Repeatedly pressing this button will change the indication in the following order: "M" (Memory)→"S" (Search)→both indications are off→"M"...

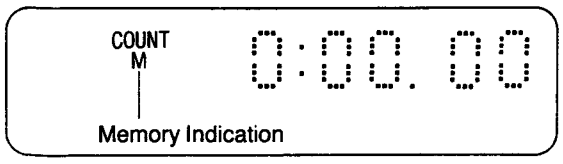
Clock/Counter Selector

By pressing this button when the Power On/Off Switch is set to "On", it is possible to change over the display mode of the Clock/Counter Display in the Multi-Function Display from "Clock" to "Counter" Display and vice versa.

- Even if the selector button is set for "Counter" the display will automatically changes over to "Clock" Display in all the following cases; When you set the Power On/Off Switch to "Off", adjust the clock to present time, program a timer recording, check a timer recording program or program and perform an OTR.
- When the Clock/Counter Display shows the time, the counter cannot be reset and the Memory and Search Function cannot be activated ("M" and "S" indication does not light up.)

Memory Function

The Memory function makes it simple and fast to find a certain position on the tape later again, simply by pressing the Reset Button at that position to set the tape counter to "0:00.00" and by pressing the Memory/Search Button. During Rewind or Fast Forward, the tape will then stop at approximately the desired position.



- Even if the Clock/Counter Display is switched over to "Clock" Display after pressing the Memory/Search Button, the Memory function will stop the tape at the desired position.

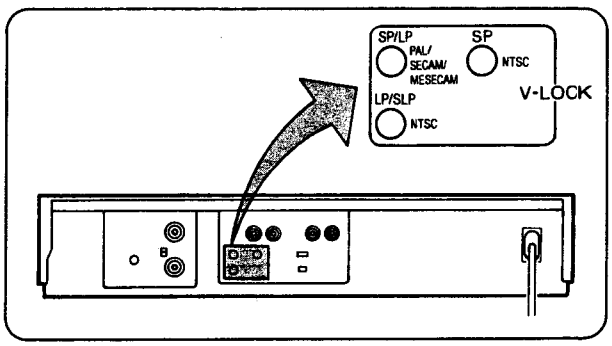
Noise Filter/Edit Selector

EDIT ON: For editing operations such as dubbing.
OFF: For ordinary use of the VCR.
NOISE FILTER ON: For playback of tapes with inferior picture quality caused, for example, by repeated dubbing.

- When the Noise Filter/Edit Selector is set to "EDIT ON", the picture sharpness cannot be adjusted with the Picture Sharpness Control.

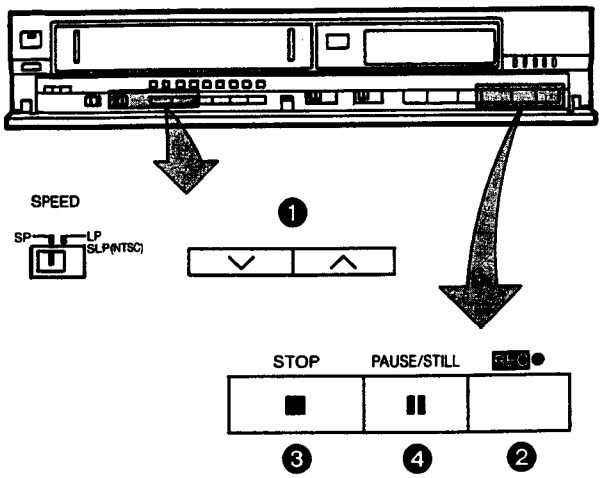
Vertical Lock Adjustment

If vertical jitter occurs during Still playback, adjust the V-Lock Control (on the rear of the VCR) for the corresponding recording system with the screw driver. A one-time adjustment should be all that is necessary.



MC-Service

RECORDING FROM A TV BROADCAST SIGNAL



Preparation

- Make sure that the Timer Record Function is set to "Off".
- Reset the Tape Counter to "0:00.00".
- Insert a video cassette with the erasure prevention tab intact.
  When a video cassette is already inside the VCR, press the Power On/Off Switch to turn it on.

Tape Speed Selector

For recording, either of two tape speeds can be selected. During playback, the VCR will automatically select the correct speed.

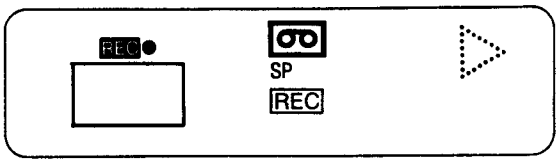
- SP Mode: For better picture quality
- LP (SLP: NTSC) Mode: For longer recording time.

> - It is not recommended to change from the SP to the LP (SLP) mode or vice versa in the middle of recording.
>   Even if the switching is done while the VCR is in the pause mode, picture distortion will occur at the switching point during playback.

Note:
The picture quality in the LP (SLP) mode is not as good as that in the SP mode.

❶ Select on the VCR, the program position (channel) to be recorded. In order to confirm proper reception, turn on the TV set and select the video playback channel.

❷ Press the Record Button (●).



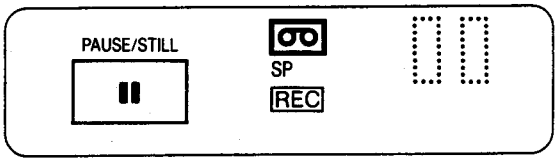
- When a video cassette with broken out tab is inserted, it will be ejected automatically.
- During recording, the program position (channel) on the VCR cannot be changed.
- To start a recording with the Remote Controller, press the two Record Buttons on the Remote Controller simultaneously.

To Finish the Recording

❸ Press the Stop Button (■).

If You Wish to Avoid Recording Unwanted Material

❹ Press the Pause/Still Button (❚❚) to stop the tape temporarily.



- Press the Pause/Still Button (❚❚) again to continue the recording.
- If you leave the VCR in the pause mode for more than 5 minutes, the VCR will automatically switch over to the stop mode to protect the tape and the video heads.

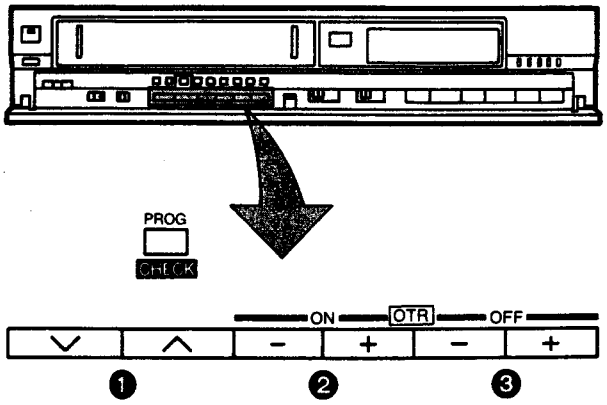
Recording One TV Program While Watching Another

1. Record (following steps ❶ and ❷).
2. Select the desired program position (channel) on your TV set.

ENGLISH

SUPER OTR FUNCTION (ONE-TOUCH TIMER RECORDING)

This convenient function makes it possible to easily program the VCR for recording of TV programs with immediate start or with start within 24 hours by precisely setting the starting time and ending time to the desired minute, and the VCR will automatically turn itself off when the recording ends.



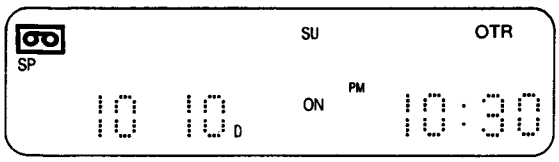
Preparation

- Make sure that the clock shows the present time correctly.
- Insert a video cassette with the erasure prevention tab intact.
  When a video cassette is already inside the VCR, press the Power On/Off Switch to turn it on.
- Set the Tape Speed Selector to "SP" or "LP (SLP)".

It is possible to program an OTR recording for a TV program which will start immediately or within the next 24 hours.
(For example, OTR recording of a TV program broadcast from 10:30 p.m. to 11:00 p.m.)

❶ Select the program position (channel) to be recorded.

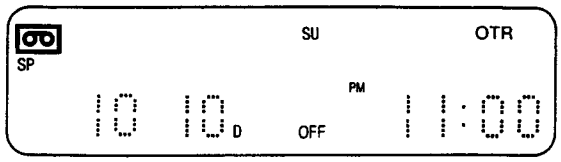
❷ Press the OTR On (+) or (−) Button to set the OTR starting time to 10:30.



- The "OTR" indicator will be displayed.

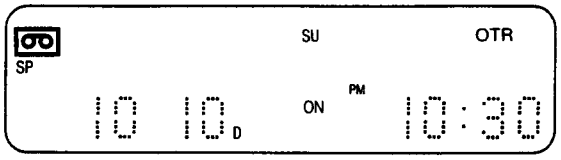
When a video cassette with broken out tab is inserted, it will be ejected automatically.

❸ Press the OTR Off (+) or (−) Button to set the OTR ending time to 11:00.

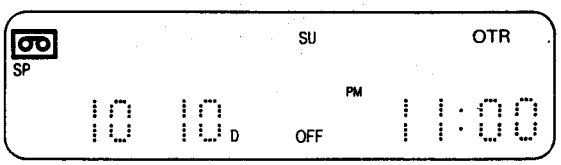


- When quickly and repeatedly pressing the OTR On (+) or (−) Button or the OTR Off (+) or (−) Button, the corresponding time indication changes in 1-minute steps. When it is kept pressed, the indication changes in 10-minute steps.
- After setting the OTR starting time in step ❷, the OTR Off (+) or (−) Button must be pressed within 8 seconds to select the OTR ending time, otherwise the selected starting time will be cancelled.

After 4 seconds, the display will automatically change back to the starting time indication.

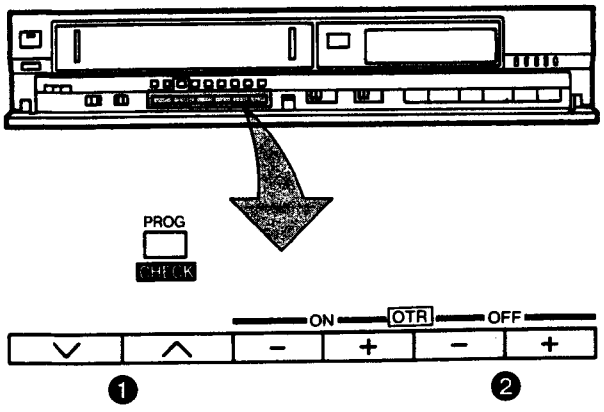


To confirm the OTR ending time, press the Program/Check Button once. When this button is pressed twice, the display will change to the clock indication mode.



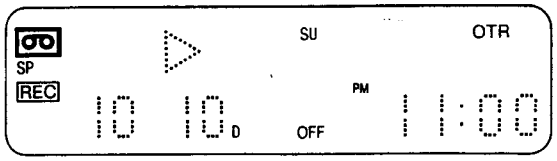
- The VCR will automatically switch off, when the OTR is completed. To turn the power on again, press the Power On/Off Switch.

MC-Service



OTR Function with Immediate Start

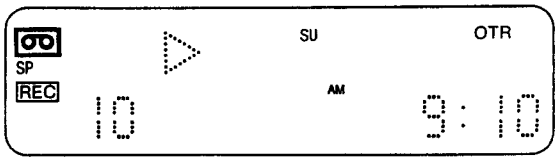
1. Select the program positioin (channel) to be recorded.
2. Press the OTR Off (+) or (−) Button to set the OTR ending time to 11:00.



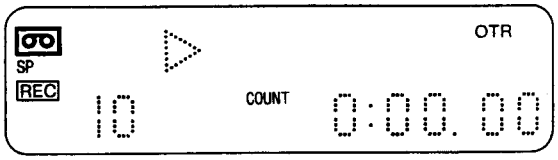
- When the tab of the inserted video cassette is broken out, it will be ejected automatically.
- The "OTR" indicator will be displayed.

- The VCR will automatically switch off, when the OTR is completed. To turn the power on again, press the Power On/Off Switch.

When the Program/Check Button is pressed once, the present time will be displayed.



When the Clock/Counter Selector Button is pressed during OTR recording, the display will change over to the counter mode.

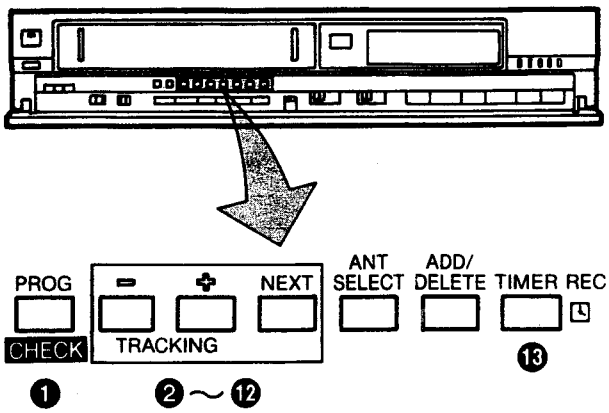


- When the tape reaches its end during an OTR the VCR will turn itself off.
- Make sure that the OTR Function (One-Touch Timer Recording) does not overlap a programmed timer recording. An OTR always takes precedence over a timer recording.
- It is possible to change the OTR starting time or the ending time before the recording starts.
- It is possible to perform any VCR operation (except timer recording) until the recording starts.
- It is possible to change the OTR ending time even during the recording.
- To interrupt an OTR, press the Power On/Off Switch to turn the power off.

ENGLISH

TIMER RECORDING

As many as 8 timer recordings can be programmed up to one month in advance.
With the Digital Scanner (optional), easy programming of timer recordings is possible with bar codes.

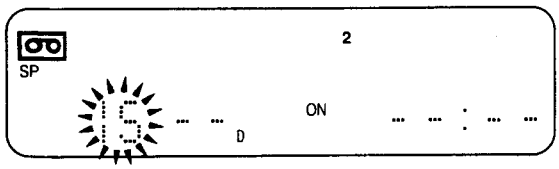


Preparation

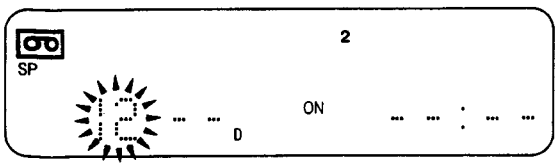
- Make sure that the clock shows the present time correctly.
- Make sure that the Timer Record Function is set to "Off".
- Insert a video cassette with the erasure prevention tab intact.
  When a video cassette is already inside the VCR, press the Power On/Off Switch to turn it on.
- Set the Tape Speed Selector to "SP" or "LP (SLP)".

For Example:
Programming a timer recording for a TV program that will be broadcast on Wednesday, October 27, from 10:30 p.m. to 11:45 p.m., on program position (channel) 12, on timer program number 2. (Present date=October 10, 1999)

1. Press the Program/Check Button to select the next unoccupied timer program number.

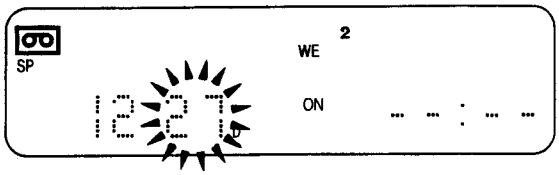


2. Press the "+" or "−" Button to select the program positiion (channel) on which the TV program will be broadcast.



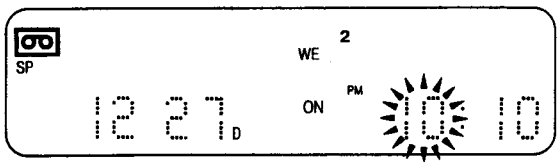
3. Press the Next Button.

4. Press the "+" or "−" Button to set the date.



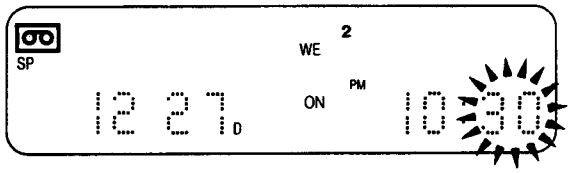
5. Press the Next Button.

6. Press the "+" or "−" Button to select the hour of the starting time of the TV program.



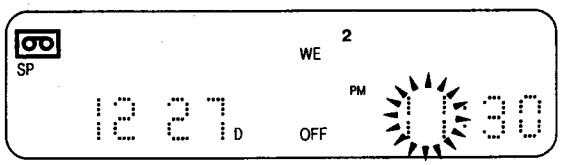
7. Press Next Button.

8. Press the "+" or "−" Button to select the minute of the starting time of the TV program.



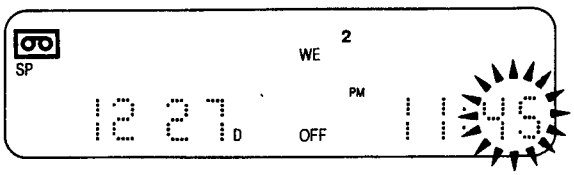
9. Press the Next Button.

10. Press the "+" or "−" Button to select the hour of the end time of the TV program.

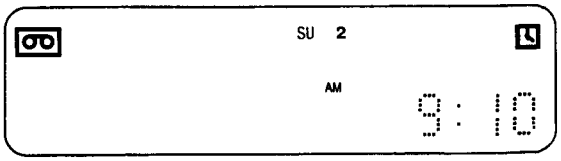


11. Press Next Button.

12. Press the "+" or "−" Button to select the minute of the end time of the TV program.



13. Press the Timer Record Button.



MC-Service

For Everyday Recording

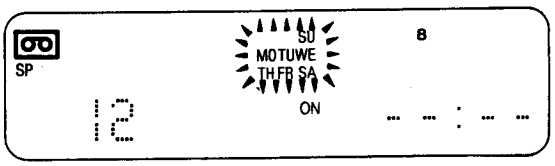
For Everyday Recording, you have the choice between 3 different modes: Monday through Friday, Monday through Saturday, and Sunday through Saturday.

For example:
Program time for timer recording every day from 10:30 p.m. to 11:45 p.m. on timer program number 8.

Programming for everyday recording can be made on any of the timer program numbers 1–8.

Execute the operation steps ❶ to ❸.

❹ Press the "–" Button until the desired type of Everyday Recording (①, ②, ③) is displayed.



Preform the operation steps ❺ to ⓭.

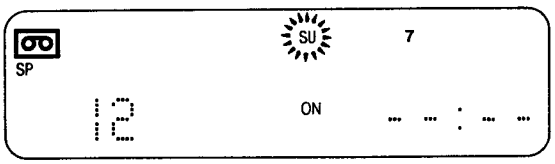
For Everyweek Recording

For Example:
Program a timer recording for a TV program that is broadcast every week on Sunday, from 10:30 p.m. to 11:45 p.m. on timer program number 7.

Programming for everyweek recording can be made on any of the timer program numbers 1–8.

Execute the operation steps ❶ to ❸.

❹ Press the "–" Button repeatedly until the "SU" Indicator(=Sunday) is lit.



Perform the operation steps ❺ to ⓭.

To Cancel a Timer Recording

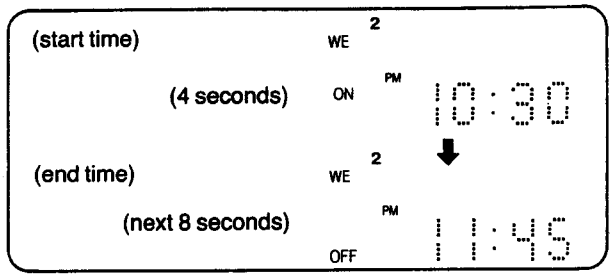
Make sure that:
the power is turned on,
the Timer Record Function is set to "Off".

① Press the Program/Check Button repeatedly, until the number of the timer program that you want to cancel is displayed.

② Press the "+" and "–" Button simultaneously for more than 3 seconds.

To Confirm the Program of a Timer Recording

Make sure that the power is turned on.
Make sure that the Timer Record Function is set to "On".
Select the program number to be checked, by repeatedly pressing the Program/Check Button.
The preset channel and start and ending times of the timer recording will be indicated for about 12 seconds.

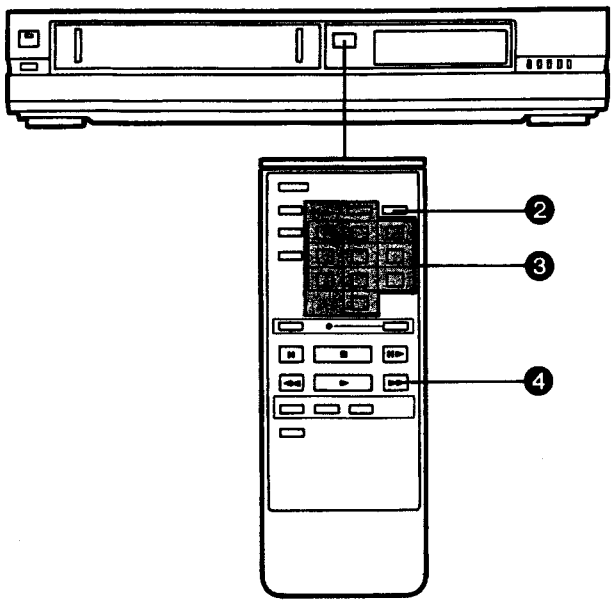


- During recording, the program position (channel) on the VCR cannot be changed.
- When you want to watch TV after setting a timer recording, select the desired channel on the TV set.
- To cancel a timer recording during recording, set the Timer Record Function to "Off".
- It is impossible to confirm programs of timer recordings while an OTR is being performed.
- To turn the power on and use it for playback or recording before the timer recording is performed, set the Timer Record Function to "Off".
- When the Timer Record Function is set to "On" but no video cassette is inserted or no timer recording has been programmed, the Timer Recording Indicator will flash to inform that the timer recording cannot be performed.
- If no cassette is inserted in the VCR, the "CTD" Mark will flash.

ENGLISH

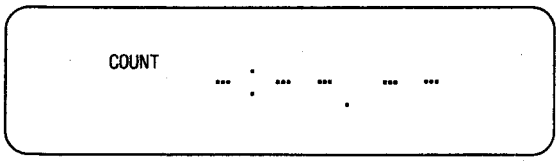
TIME SEARCH

It is possible to locate the desired scene directly by inputting the hour, minute and second of that scene.

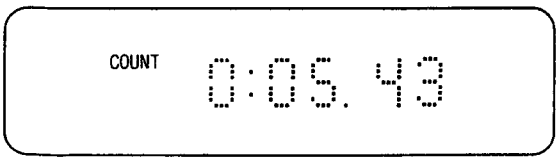


❶ Put the VCR in STOP mode.

❷ Press the Time Search Button.
The indication in the Multi-Function Display changes as shown below.



❸ Input the time of the desired scene.
- The time is input by pressing the number buttons in the order: hour, minute, second.
- The "–" indication will be counted as "0".
- If you want to input an earlier time than "0:00.00", press the +/– Button so that the "–" indication appears ahead of the counter indication.

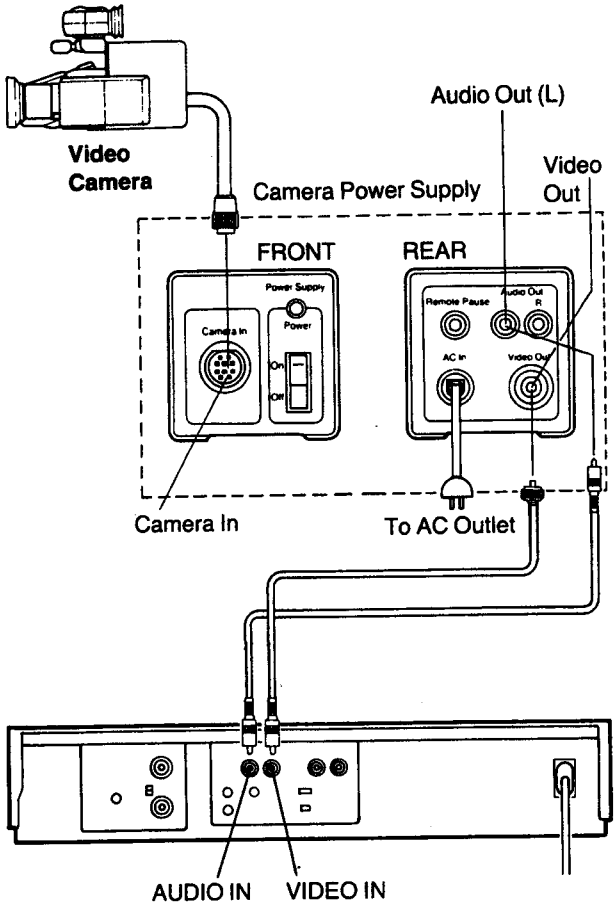


❹ Press the Fast Forward ▶▶/Cue ⏩ Button.
- The VCR automatically judges whether the tape should be fast-forward or rewound and performs the appropriate operation.
- When the designated time is reached, the playback starts.

- The numbers in the Tape Counter do not change during parts of the tape on which there is no recording.
- When the tape is ejected, the Tape Counter will automatically be reset to "0:00.00".

MC-Service

CAMERA RECORDING



Preparation

- Connect the Video Camera via the Camera Power Supply to the VCR as shown in the illustration above.
- Insert a video cassette with the erasure prevention tab intact. When a video cassette is already inside the VCR, press the Power On/Off Switch to turn it on.
- To make the AV Indicator appear in the Multi-Function Display, select the "0" program position with the Channel Selection Up or Down Button on the VCR. (In case of the Remote Controller, press the "0" Button twice.)
- Set the Tape Speed Selector to "SP" or "LP (SLP)".

❶ Turn the Camera Power Supply on and make the necessary adjustments on the camera.
Refer to the operating instructions of the camera you are using.

❷ Press the Record Button (●) on the VCR to start recording.

To Avoid recording unwanted material:
Press the Pause/Still Button (❚❚) of the VCR, and the recording will stop temporarily. To restart recording, press the Pause/Still Button (❚❚), again.

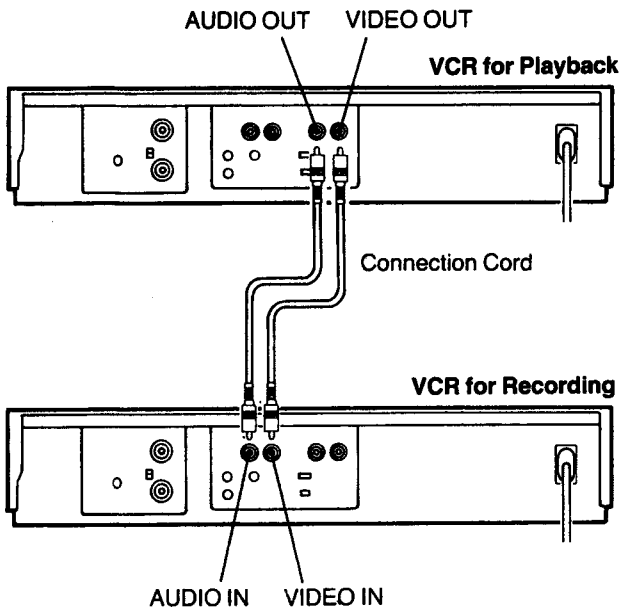
❸ Press the Stop Button (■) on the VCR to stop the recording.

- If you leave the VCR in the pause mode for more than 5 minutes, the VCR will stop automatically to protect the tape and the video heads.
- Even if the video camera is equipped with video recorder remote control functions, this VCR can not be remote-controlled from the camera.
- When a SECAM system video camera is used, and the System Selectors on the front of the VCR are set to the "AUTO" position, the recording will be made in the MESECAM system.

ENGLISH

DUBBING (COPYING)

Dubbing (copying) from one video cassette to another.

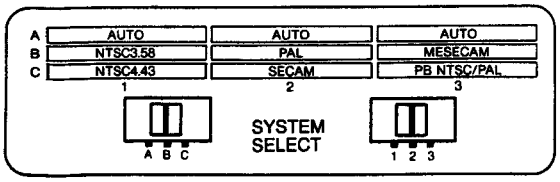


Preparation

- Make the necessary connections as shown in the connection diagram.
- Press the Power On/Off Switches to turn both VCRs on.
- To make the AV Indicator appear in the Multi-Function Display, select the "0" program position with the Channel Selection Up or Down Button on the recording VCR. (In case of the Remote Controller, press the "0" Button twice.)
- Make sure that the Noise Filter/Edit Selector of both the recording and playback VCRs (if equipped) are in the "EDIT ON" position. Set these switches to "OFF" for ordinary use of the VCRs.
  (The Noise Filter/Edit Selector is on the front panel.)

❶ Place the recorded cassette in the playback VCR and a blank video cassette with the erasure prevention tab intact in the recording VCR.

❷ Select the system of the original tape.
Dubbing can not be performed when the System Selectors are set to AUTO position.



❸ Press the Record Button (●) on the recording VCR.

❹ Press the Play Button (▶) on the playback VCR.

❺ Press the Stop Button (■) on both VCRs to stop the dubbing.

- To assure smooth, noiseless cuts when interrupting the recording, always use the Pause/Still Button (❚❚).
- To obtain smooth cuts when starting the recording from the stop mode:
  1. Play back the last part of the previously recorded material to confirm its ending point, and then press the Pause/Still Button (❚❚).
  2. Press the Record Button (●).
     (The VCR is still in the pause mode.)
  3. To start recording, press the Pause/Still Button (❚❚) again.
- The picture quality of a re-recorded tape is not as good as that of the original.
- When connecting the two VCRs via the RF Connectors and using this unit as the playback VCR, it is not possible to dub tapes that were recorded in the NTSC system.

MC-Service

BEFORE REQUESTING SERVICE

Before requesting service, check the following points once again.

SYMPTOM	CAUSE	REMEDY
Power doesn't turn on.	AC power cord is not connected.	Connect AC power cord to AC outlet.
	The Timer Record Function is set to "On".	Set the Timer Record Function to "Off".
Power is on but unit doesn't operate.	Safety devices are operating.	Turn off the Power On/Off Switch, disconnect AC power cord from outlet, then reconnect AC power cord to mains outlet and turn on the Power On/Off Switch again.
	Dew condensation inside the VCR.	Wait until the Dew Indicator " ☃ " goes off.
TV programs cannot be recorded.	Connection of antenna cable is not correct.	Connect antenna cable correctly.
	Reception channel is not properly tuned.	Tune reception channel.
OTR Function (One-Touch Timer Recording) cannot be performed.	Clock is flashing at "AM 12:00".	Set clock to present time.
Unattended timer recording cannot be performed.	Recording start or recording stop time setting is incorrect.	Set recording start and recording stop time correctly.
	The Timer Record Function is set to "Off".	Set the Timer Record Function to "On".
	Clock shows incorrect time.	Adjust clock to present time.
	Clock is flashing at "AM 12:00".	Set clock time and perform timer setting.
Unattended timer recording cannot be programmed.	The OTR is now being performed.	Program the timer recording after the OTR has finished.
If you attempt to carry out Recording, Timmer Recording, or OTR, the cassette will be automatically ejected.	Accidental erasure prevention tab on the cassette is broken out.	Cover tab hole with adhesive tape.
Recording of signals input via Audio Input Jack and Video Input Jack cannot be performed.	The program position (channel) "AV" is not selected.	Select program position (channel) "AV".

BEFORE REQUESTING SERVICE (CONT'D)

SYMPTOM	CAUSE	REMEDY
Playback picture is not reproduced.	Connection with television set is not correct.	Connect the VCR to the television set correctly.
	TV set is not tuned to the video playback channel.	Tune TV set to the video playback channel of the VCR.
Playback picture of NTSC recordings is not reproduced.	VCR is not connected to TV set with separate video and audio cables.	Use separate video and audio cables to connect the VCR to the TV set. (See page 8.)
TV programs in the NTSC system cannot be seen.	The TV set is still tuned to the video playback channel.	Select the desired TV channel on the TV set.
Playback picture is not in color. Playback picture has large amounts of "snow".	Reception channel was not adjusted correctly during recording.	Readjust reception channel correctly.
	TV set is not properly tuned to the video playback channel of the VCR.	Properly tune the TV set to the video playback channel of the VCR.
	The video heads are clogged with dirt.	Consult qualified service personnel.
	The video heads are worn.	Consult qualified service personnel.
	Tape is old and/or defective.	Use new tape.
Remote Controller does not work.	Remote Controller is not being pointed at Receiver Window on the VCR.	Point the Remote Controller at Receiver Window on the VCR.
	Distance is too far.	Use the Remote Controller within 7 m from the VCR.
	An obstacle is between Remote Controller and VCR.	Remove obstacle.
	Batteries are exhausted.	Replace batteries.
	Battery polarities (+, −) are reversed.	Insert batteries correctly.

MC-Service

SPECIFICATIONS

NV-J700PX Information for Your Safety

Power Source:	110/120/220/240 V (AUTO VOLTAGE) AC 50–60 Hz
Power Consumption:	Approx. 32 watts

Video Recording System: 2 rotary heads, helical scanning system
Video Heads: 4 heads
Tape Speed: SP; 23.39 mm/sec. (PAL/SECAM), 33.3 mm/sec. (NTSC)
LP; 11.7 mm/sec. (PAL/SECAM)
SLP; 11.1 mm/sec. (NTSC)
Tape Format: VHS tape
Record/Playback Time: SP; 240 min. with NV-E240 (PAL/SECAM), 120 min. with NV-T120 (NTSC)
LP; 480 min. with NV-E240 (PAL/SECAM)
SLP; 360 min. with NV-T120 (NTSC)
FF/REW Time: Approx. 5.5 min. with NV-E180, NV-T120

VIDEO

Television System:	CCIR; 625 lines, 50 fields, PAL/SECAM color signal		
	EIA; Standard (525 lines, 60 fields) NTSC color signal		
Modulation System:	Luminance; FM azimuth recording		
	Color signal; converted subcarrier phase shift recording		
Input Level:	VIDEO IN (PHONO);	1.0 Vp-p,	75 ohm, unbalanced
Output Level:	VIDEO OUT (PHONO);	1.0 Vp-p,	75 ohm, unbalanced
	RF Modulated; UHF channel C25 (24–27),		75 ohm, unbalanced
	UHF channel E38 (32–40),		75 ohm, unbalanced

AUDIO

Input Level:	AUDIO IN (PHONO);	−10 dBV,	more than 50 kohm, unbalanced
Output Level:	AUDIO OUT (PHONO);	−6 dBV,	less than 1 kohm, unbalanced
Audio Track:	1 track (Normal-mono only)		

Video Horizontal Resolution: Color; more than 240 lines (SP/PAL, SECAM)
more than 230 lines (SP/NTSC)
Signal-to-Noise Ratio: Video; more than 43 dB (SP)
Audio; more than 43 dB (SP/PAL, SECAM)
more then 42 dB (SP/NTSC)
Audio Frequency Response: 80 Hz–10 kHz (SP)
Operating Temperature: 5°C–40°C
Operating Humidity: 35%–80%
Weight: 12⅛" lbs (5.5 kg)
Dimensions: 16 15/16" (W)× 3¼" (H)×13 15/16" (D)
[430 (W)×82 (H)×353 (D) mm]

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

ENGLISH